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Anmelder/Applicant/Demandeur/Patentinhaber/Propriétaire/Titulaire  
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## COMMUNICATION

The European Patent Office herewith transmits the partial European search report under Rule 46(1) EPC relating to the above-mentioned European patent application.

Copies of the documents cited in the search report are enclosed.

The applicant's attention is drawn to the following:

The search Division informs the applicant that if the European search report is also to cover inventions other than the invention first mentioned in the claims, a further search fee must be paid for each of these inventions, within ONE MONTH after notification of this communication.

If the application has been filed up to 30 June 1999, the search fee in force before 01 July 1999 (EUR 869,-) or the equivalent applicable on the date of payment is payable.

**This applies also to the search fees requested under Rule 46(1) EPC.**

See also OJ EPO 06/1999, 405.

☒ The abstract was modified by the Search Division and the definitive text is attached to the present communication.

☒ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well. → 3



### Note to users of the automatic debiting procedure:

Unless the EPO receives prior instructions to the contrary, the search fee(s) will be debited on the last day of the period for payment. For further details see the Arrangements for the automatic debiting procedure, Supplement to OJ EPO 02/1999.

REGISTERED LETTER



European Patent  
Office

# PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 46, paragraph 1 of the European Patent Convention EP 02 00 4194

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	✓ US 6 178 009 B1 (HIRABAYASHI HIROMITSU ET AL) 23 January 2001 (2001-01-23) * column 1, line 7 - column 2, line 31 * * column 86, line 10 - column 91, line 38 *	1,2,5	B41J2/21 B41J11/00
X	✓ US 5 992 973 A (WEN XIN) 30 November 1999 (1999-11-30) * column 3, line 33 - line 50 * * column 4, line 24 - line 58 *	1,5	
X	✓ EP 1 043 166 A (SEIKO EPSON CORP) 11 October 2000 (2000-10-11) * column 1, line 29 - line 42 * * column 30, line 28 - line 31 * * column 31, line 54 - line 56 * * column 35, line 33 - line 55 * * column 35, line 37 - line 41 *	1,5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B41J
<b>LACK OF UNITY OF INVENTION</b>			
The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:			
see sheet B			
The present partial European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.			
Place of search <b>MUNICH</b>		Date of completion of the search <b>20 September 2002</b>	Examiner <b>Achermann, D</b>
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		& : member of the same patent family, corresponding document	



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1, 2 and 5

An ink-jet recording apparatus comprising a low-penetrable ink and a high-penetrable ink, and using only the high-penetrable ink when conducting margin-free recording.

2. Claims: 3, 4 and 6

An ink-jet recording apparatus comprising a low-penetrable ink and a high-penetrable ink, and gradually decreasing the amount of the low-penetrable ink and increasing gradually the amount of high-penetrable ink toward the edge of a recording medium when conducting margin-free recording.

3. Claims: 7-10

An ink-jet recording apparatus comprising an ink and a liquid composition that reacts with the ink when coming into contact with the ink, printing only with the ink when conducting margin-free recording.

The general common concept linking the three inventions is an ink-jet recording apparatus comprising two different liquids, and using only one of these liquids when conducting margin-free recording. It is to be noted that this apparatus, when not conducting margin-free recording, might use the same liquid as when conducting margin-free recording, or another liquid. The claims do not specify. This concept is known from US-B1-6178009, US-A-5992973, or EP-A-1043166. Therefore the requirements of Art. 82 EPC are not met.

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 00 4194

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-09-2002

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 6178009	B1	23-01-2001	JP	11227229 A	24-08-1999
US 5992973	A	30-11-1999	EP	0995604 A1	26-04-2000
			JP	2000118014 A	25-04-2000
EP 1043166	A	11-10-2000	JP	3092667 B2	25-09-2000
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			EP	1043166 A2	11-10-2000



## ABSTRACT / ZUSAMMENFASSUNG / ABREGE

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An ink-jet recording apparatus is provided for conducting margin-free recording on the peripheral area of the recording medium including the edge thereof with excellent image quality even in the peripheral area in comparison with quality of the usual printing having a margin. A process therefor is also provided.

When printing without margin (margin-free recording), only dye ink (high-penetrable ink) is used, without using pigment ink (low-penetrable ink). The process of accumulation of ink on an ink-absorbent member is discussed. A process of applying ink and a liquid composition, so as to form their reaction product on a recording medium, is provided.